

### **Remarks**

This Amendment is responsive to the Action mailed November 4, 2002. Claims 15-22 and 33-51 are currently pending. Applicant respectfully requests that this Amendment After Final be entered and that a Notice of Allowance be issued forthwith. Alternatively, Applicant respectfully requests that this Amendment After Final be entered as narrowing the issues for further consideration should Applicant decide to file a Notice of Appeal. Applicants traverse the outstanding rejections for the reasons provided below.

#### **I. Claims 15, 34, and 43 Are Not Anticipated by Gribbin**

Claims 15-18, 20, 33-37, 39, 42-46, 48, and 51 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,186,974 to Gribbin et al. (Gribbin). The Action admits that Gribbin proposes "an aqueous solution of bifunctional fluoropolyethers." (The Action, page 2) (emphasis added). The Action responds to Applicants' earlier arguments stating:

Applicant argues that the claim language "consisting essentially of" excludes water from the composition of the present invention. Applicant directs the examiner's attention to the specification wherein the statement regarding only minor amounts of cosolvents, surfactants or the like may be present in the instant composition. It is Applicant's position that this statement supports the exclusion of water from the present composition.

It is well settled that the transitional phrase "consisting essentially of" limits the scope of the claim to the specified material and those that do not materially affect the basic and novel characteristics of the claimed invention. As Applicant has pointed out in the specification, minor amounts of cosolvents may be present in the composition and this teaching does not exclude water, nor is there any evidence that the presence of water would affect the basic and novel characteristics of the claimed invention.

(The Action, page 4). Applicants respectfully traverse this rejection.

It appears from the Action that the Examiner did not fully understand Applicants' argument. Applicants argument is as follows: In the Gribbin compositions, water is the only solvent, while in Applicants' claimed compositions, the solvent consists essentially of carbon dioxide, with water being at most a co-solvent present in only a minor amount. To highlight this feature of the present invention, Applicants have amended Claims 15, 34, and 43 to recite "a solvent consisting essentially of carbon dioxide."

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. § 2131 (quoting *Verdegaal Bros. v. Union Oil Co.*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987)). As described above, Applicants claimed compositions each recite a composition comprising a solvent consisting essentially of carbon dioxide. In stark contrast, Gribbin proposes a composition comprising a solvent consisting of water, with no carbon dioxide being present. Thus, the Gribbin reference does not anticipate Applicants' claimed compositions because it fails to teach each and every element of Applicants claimed invention. For at least the foregoing reasons, Applicants respectfully submit that Claims 15-18, 20, 33-37, 39, 42-46, 48, and 51 are not anticipated by Gribbin and request that these rejections be withdrawn.

## **II. Claims 21, 22, 40, 41, 49, and 50 Are Not Obvious Over Gribbin in View of Nielsen**

Claims 21, 22, 40, 41, 49, and 50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gribbin in view of U.S. Patent No. 5,009,367 to Nielsen (Nielsen). The Action admits that Gribbin fails to teach that carbon dioxide is a liquid or a supercritical fluid. However, the Action states that Nielsen teaches combining supercritical fluids with a coating composition and spraying this composition and asserts that it would be obvious to substitute the supercritical fluid CO<sub>2</sub> of Nielsen for the gaseous CO<sub>2</sub> of Gribbin. While dependent Claims 21, 22, 40, 41, 49, and 50 are patentable by virtue of the patentability of independent Claims 15, 34, and 43, Applicants submit that these claims are separately patentable over Gribbin in view of Nielsen for the following reasons.

To establish a prima facie case of obviousness, the prior art reference or references when combined must teach or suggest *all* the recitations of the claim, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. § 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. § 2143.01, citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). To support combining references, evidence of a suggestion, teaching, or motivation to combine must be clear and particular, and this requirement for clear and

particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). The Court of Appeals for the Federal Circuit has also stated that, to support combining or modifying references, there must be **particular** evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, **would have selected these components for combination in the manner claimed**. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000).

Respectfully, as will be discussed below, the Action fails to meet the requirements for a showing of obviousness under § 103.

In its Background section, Nielsen describes three types of orifice sprays typically used in the coatings industry: air spray, airless spray, and air-assisted airless spray. (Nielsen, col. 1, lines 32-34). Nielsen states that air spray uses compressed air to break up the liquid coating formulation into droplets (i.e., form an aerosol) and to propel the droplets to the substrate. (Nielsen, col. 1, lines 35-37). Nielsen describes airless spray as using a high-pressure drop across an orifice to propel the coating formulation through the orifice at high velocity. (Nielsen, col. 1, lines 47-48). Nielsen describes air-assisted airless spray as combining features of air spray and airless spray, stating that "[i]t uses both compressed air and high pressure drop across the orifice to atomize the coating formulation and to shape the liquid spray, typically under milder conditions than each type of atomization is generated by itself." (Nielsen, col. 1, lines 60-65).

Gribbin appears to propose the use of an air spray system. Specifically, Gribbin proposes forming a coating on a substrate layer "by the simultaneous action of an electric corona discharge in the presence of an aerosol containing film-forming agents." (Gribbin, col. 2, lines 64-67). Gribbin proposes the use of carbon dioxide as a carrier gas for forming the aerosol of an aqueous solution of a bifunctional fluoropolyether. "The aerosols can be produced with the aid of known two-material atomizing nozzles or preferably by means of piezoelectric ultrasonic atomizing systems." Gribbin, col. 3, lines 18-20).

When discussing its inventive concepts, Nielsen proposes the use of an airless spray system. Specifically, Nielsen proposes utilizing an "airless spray nozzle tip to produce a given spray width and provide an actual spray width which is substantially greater than that rated" for the airless spray tip nozzle. (Nielsen, col. 3, lines 34-36). Nielsen achieves this greater spray

width by mixing supercritical carbon dioxide with a typical, conventional coating formulation or coating composition.

The Action has not presented clear and particular evidence showing that there would be a motivation to combine the teachings of Gribbin with the teachings of Nielsen. As described above, Gribbin is directed to the use of air spray systems that form a coating on a substrate layer by the simultaneous action of an electric corona discharge in the presence of an aerosol containing film-forming agents, while Nielsen is directed to the use of supercritical carbon dioxide to increase the width of a spray pattern using an airless system. The Action has not presented clear and particular evidence why one skilled in the art would be motivated to combine the teachings of Gribbin's air spray system with the teachings of Nielsen's airless system. Accordingly, Applicants respectfully submit that Claims 21, 22, 40, 41, 49, and 50 are separately patentable over Gribbin in view of Nielsen.

Even if one skilled in the art were to be motivated to combine the teachings of Gribbin with the teachings of Nielsen, the Action has not presented clear and particular evidence that the air spray process proposed by Gribbin, which forms a coating on a substrate layer by the simultaneous action of an electric corona discharge in the presence of an aerosol containing film-forming agents, would be operational if the supercritical carbon dioxide that Nielsen found to be useful in increasing the width of the spray pattern in an airless spray system were substituted for the aerosol-forming carbon dioxide gas of Gribbin. Accordingly, for this additional reason, Applicants respectfully submit that Claims 21, 22, 40, 41, 49, and 50 are separately patentable over Gribbin in view of Nielsen.

Claims 21, 40, and 49 each recite a composition comprising a solvent consisting essentially of liquid carbon dioxide. Assuming that one skilled in the art would be motivated to combine the teachings of Gribbin with the teachings of Nielsen, and assuming that the process of Gribbin would still be operational if one were to substitute the supercritical carbon dioxide of Nielsen for the carrier gas of Gribbin, the Action has still failed to present clear and particular evidence that one skilled in the art would be motivated to modify the composition resulting from the combination of Gribbin and Nielsen to arrive at the claimed invention. If one were to combine Gribbin with Nielsen, the resulting composition would include supercritical carbon dioxide as a carrier fluid and an aqueous solution of a bifunctional fluoropolyether. The Action

fails to present clear and particular evidence why one skilled in the art would be motivated to modify such a composition to include liquid carbon dioxide. Applicants submit that, in view of Gribbin's use of an aerosol formed by a carrier gas, one skilled in the art would not be motivated to modify the resulting composition to include a liquid carbon dioxide. For at least the foregoing reasons, Applicants respectfully submit that Claims 21, 40, and 49 are not obvious over Gribbin in view of Nielsen and request that these rejections be withdrawn.

As for Claims 22, 41, and 50, each of these claims recites a composition comprising a solvent consisting essentially of supercritical carbon dioxide. Assuming that one skilled in the art would be motivated to combine the teachings of Gribbin with the teachings of Nielsen, and assuming that the process of Gribbin would still be operational if one were to substitute the supercritical carbon dioxide of Nielsen for the carrier gas of Gribbin, the Action has not presented clear and particular evidence that one skilled in the art would be motivated to modify the composition resulting from the combination of Gribbin and Nielsen to arrive at the claimed invention. As described above, if one were to combine Gribbin with Nielsen, the resulting composition would include supercritical carbon dioxide as a carrier fluid and an aqueous solution of a bifunctional fluoropolyether. The Action fails to provide clear and particular evidence as to why one skilled in the art would be motivated to modify the resulting composition, which would have water as the primary, if not sole, solvent and supercritical carbon dioxide as a carrier fluid, to provide the claimed composition, which includes a solvent consisting essentially of supercritical carbon dioxide. For at least the foregoing reasons, Applicants submit that Claims 22, 41, and 50 are not obvious over Gribbin in view of Nielsen and respectfully request that these rejections be withdrawn.

Advantageously, the compositions of the present invention do not form a surface coating or film on the surface of a civil infrastructure when they are applied thereto. Instead, they penetrate into the pores of the material, so that the coating is incorporated into the material and the material retains a more natural appearance.

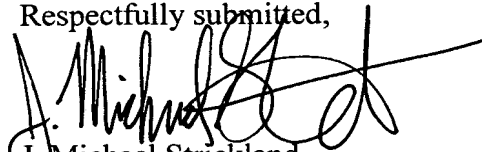
### **III. Conclusion**

The concerns of the Examiner addressed in full, Applicant respectfully requests that this Amendment After Final be entered and that a Notice of Allowance be issued forthwith.

In re: Carbonell et al.  
Serial No.: 09/619,993  
Filed: July 20, 2000  
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Alternatively, Applicant respectfully requests that this Amendment After Final be entered as narrowing the issues for further consideration should Applicant decide to file a Notice of Appeal. Any questions that the Examiner may have can be directed to the undersigned, who may be reached at (919) 854-1400.

Respectfully submitted,

  
J. Michael Strickland  
Registration No. 47,115

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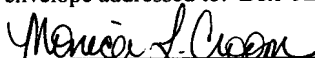


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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Box AF, Commissioner for Patents, Washington, DC 20231, on February 4, 2003. ✓

  
Monica L. Croom

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims:**

Please amend Claim 15-22, 34, and 43 as follows:

15. (Thrice Amended) A composition useful for protecting civil infrastructure, said composition comprising:

a solvent consisting essentially of carbon dioxide; and

between about 0.1 and 20 percent of a fluoropolyether, said fluoropolyether having at least one anchoring group covalently joined thereto.

16. (Amended) [A] The composition according to claim 15, wherein said fluoropolyether is a perfluoropolyether.

17. (Amended) [A] The composition according to claim 15, wherein said anchoring group is selected from the group consisting of amides, esters, carboxylic acids, urethanes, ureas, and mercaptans.

18. (Amended) [A] The composition according to claim 15, wherein said anchoring group is an amide, ester, or carboxylic acid.

19. (Amended) [A] The composition according to claim 15, wherein said anchoring group is an amide.

20. (Amended) [A] The composition according to claim 15, wherein said composition is a single phase mixture.

21. (Amended) [A] The composition according to claim 15, wherein said carbon dioxide is a liquid.

22. (Amended) [A] The composition according to claim 15, wherein said carbon dioxide is a supercritical fluid.

34. (Amended) A composition useful for protecting civil infrastructure, said composition comprising:

a solvent consisting essentially of carbon dioxide; and  
between about 0.1 and 40 percent of a fluoropolyether, said fluoropolyether having at least one anchoring group covalently joined thereto.

43. (Amended) A composition useful for protecting civil infrastructure, said composition comprising:

a solvent consisting essentially of carbon dioxide; and  
between about 0.1 and 80 percent of a fluoropolyether, said fluoropolyether having at least one anchoring group covalently joined thereto.

\* \* \* *END* \* \* \*